

Use Attainability Analysis

for

WBID 1500 Wolf Creek

Submitted by
SES, Inc.

To
Missouri Department of Natural Resources
Water Protection Program

Date Received: October 26, 2007

Field Data Sheets for Recreation Use Stream Surveys

Data Sheet A - Water Body Identification

I. Water Body Information (For water body being surveyed)

| | |
|---|-------------------|
| Water Body Name (from USGS 7.5' quad): Wolf Creek | |
| Missouri Water Body Identification (WBID) Number: 1500 | |
| 8 digit HUC code: 10290201 | County: Wright |
| Upstream Legal Description (from Table H): T28N R15W 16 | |
| Downstream Legal Description (from Table H): T29N R15W 12 | |
| Number of sites evaluated: 5 | |
| List all site numbers, listed consequently upstream to downstream: 1,2,3,4,5 | |

Site Locations Map(s): Attach a map of the entire segment with assessment sites clearly labeled.
Mark any other items that may be of interest.

II. Facility Information (list all permitted discharges to the water body segment)

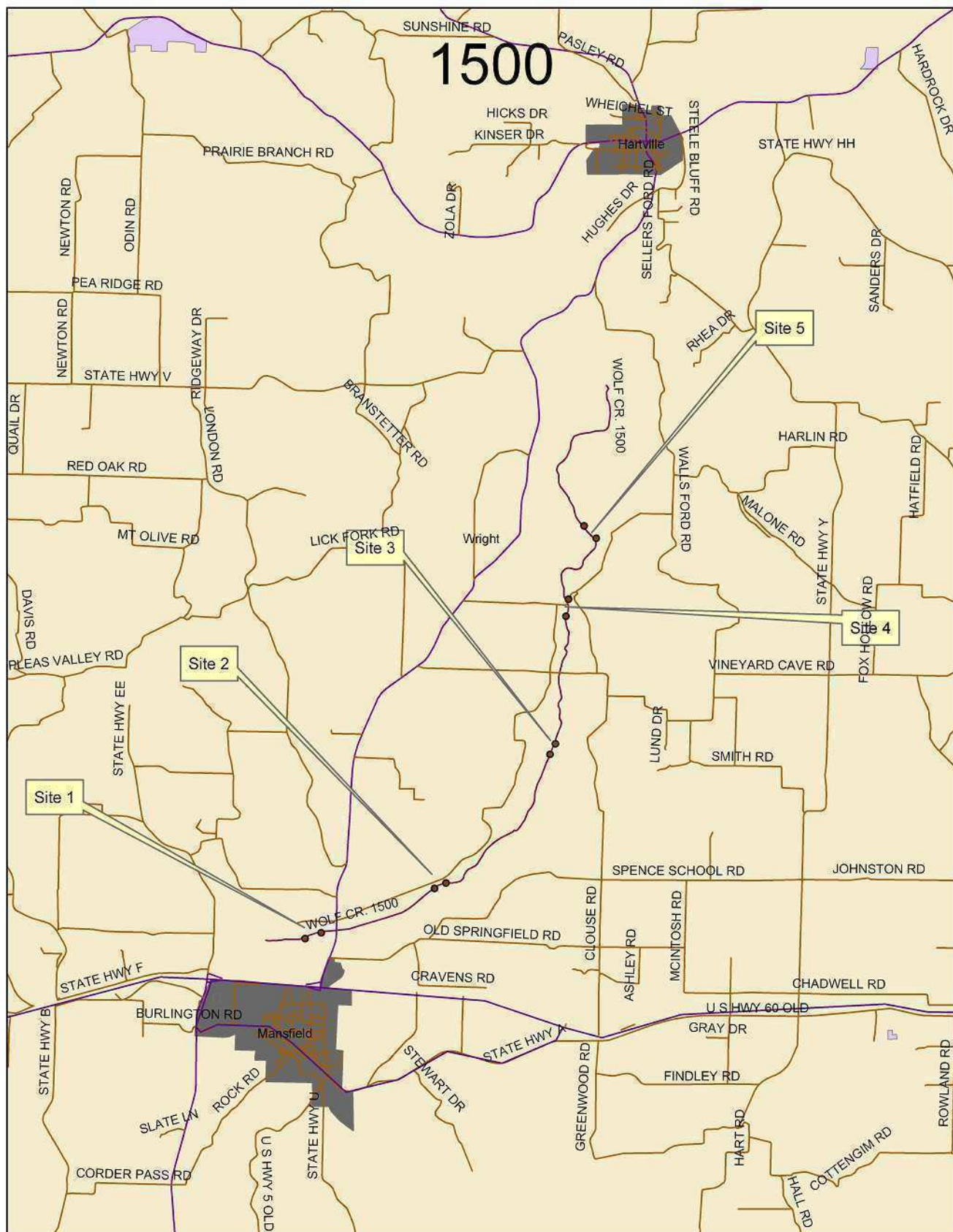
| |
|---|
| Facility Name(s) and Permit Number(s): Rocky Ridge Manor MO 0035564 |
|---|

III. UAA Surveyor (please print legibly)

| | |
|-------------------------------------|------------------------------------|
| Name of Surveyor: Aaron Ball | Telephone Number: (913)307-0046 |
| Organization/Employer: SES, Inc. | |

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Signed: Aaron Ball **Date:** 10/23/2007



WBID # 1500
 Site # 1

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

| | | | |
|--|-------------------------|----------------|---|
| Date & Time: | 10/11/07 | 13:35 | Site Location Description (e.g. road crossing): |
| Personnel: | Aaron Ball, Drew Dodson | | Land owner access at Westbrook Dr. |
| Current Weather Conditions: | clear | Facility Name: | Rocky Ridge Manor |
| Weather conditions for the past 10 days: | 0.74 inches | Permit Number: | MO 0035564 |
| Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/> | | | |

Site Location:

| Location Coordinates (Universal Transverse Mercator Projection, In Meters) | | | | | |
|--|------------------|-------------------|----------------------|--------|--|
| Site 01 | Easting (UTM X): | Northing (UTM Y): | Horizontal Accuracy: | Meters | |
| | 0537366 | 4108646 | | 4.5 | |
| Site 11 | Easting (UTM X): | Northing (UTM Y): | Horizontal Accuracy: | Meters | |
| | 0537652 | 4109751 | | 6.9 | |

Photos:

| | | | | | |
|-----------|---------------|-----------|---------------|-----------|---------------|
| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
| 72 | Upstream | 73 | Downstream | | |
| | | | | | |
| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
| | | | | | |
| | | | | | |
| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
| | | | | | |

Uses Observed:

| | | | | |
|---------------------------------------|--------------------------------------|---------------------------------------|---|---------------------------------------|
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Skin diving | <input type="checkbox"/> SCUBA diving | <input type="checkbox"/> Tubing | <input type="checkbox"/> Water Skiing |
| <input type="checkbox"/> Wind surfing | <input type="checkbox"/> Kayaking | <input type="checkbox"/> Boating | <input type="checkbox"/> Wading | <input type="checkbox"/> Rafting |
| <input type="checkbox"/> Hunting | <input type="checkbox"/> Trapping | <input type="checkbox"/> Fishing | <input checked="" type="checkbox"/> None of the above | <input type="checkbox"/> Other: |
| Describe: | | | | |

WBID # 1500
 Site # 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

| | | | | |
|--|--------------------------------------|---|--|---|
| <input type="checkbox"/> City/County parks | <input type="checkbox"/> playgrounds | <input type="checkbox"/> MDC conservation lands | <input type="checkbox"/> Urban areas | <input checked="" type="checkbox"/> Rural Residential |
| <input type="checkbox"/> Campgrounds | <input type="checkbox"/> State parks | <input type="checkbox"/> National Forests | <input type="checkbox"/> Nature trails | <input type="checkbox"/> Stairs/walkways |
| <input type="checkbox"/> Boating accesses | <input type="checkbox"/> Fence | <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Steep Slopes | <input type="checkbox"/> Other: |
| Comments: | | | | |

Evidence of Human Use:

| | | | | |
|--|---|--|---|---|
| <input type="checkbox"/> Roads | <input type="checkbox"/> Foot path/prints | <input type="checkbox"/> Dock/platform | <input type="checkbox"/> Camping Sites | <input type="checkbox"/> Rope swings |
| <input type="checkbox"/> RV/ATV Tracks | <input type="checkbox"/> Fire pit/ring | <input type="checkbox"/> NPDES Discharge | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Livestock watering |
| comments/other: none | | | | |

Substrate:

| | | | | | |
|----------|----------|--------|--------|------------|-----------|
| % Cobble | % Gravel | % Sand | % Silt | % Mud/Clay | % Bedrock |
| 30 | 50 | | | | 20 |

Aquatic Vegetation:

| |
|-----|
| N/A |
|-----|

Water Characteristics:

| | | | | | |
|------------------|---------------------------------|---------------------------------|---|--|--|
| Odor: | <input type="checkbox"/> Sewage | <input type="checkbox"/> Musky | <input type="checkbox"/> Chemical | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| Color: | <input type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input checked="" type="checkbox"/> Other: |
| Bottom Deposit: | <input type="checkbox"/> Sludge | <input type="checkbox"/> Solids | <input type="checkbox"/> Fine sediments | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| Surface Deposit: | <input type="checkbox"/> Oil | <input type="checkbox"/> Scum | <input type="checkbox"/> Foam | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |

WBID # 1500
Site # 1

Field Data Sheets for Recreational Use Stream Survey:

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

| Channel Feature | Distance from access location (m) | Width (m) | Length (m) | Median Depth (m) | Max Depth (m) |
|-----------------|--------------------------------------|-----------|------------|------------------|---------------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Comments: (Please record any additional comments here.)

Stream is dammed up 500 ft. to the West.

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: Aaron Ball Date of Survey: 10/11/2007

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

| Dissolved Oxygen | | | | | | | | | | | | | | | | | | | | | |
|--|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--|-----------|--------------|-----------|--------------|-----------|
| Waterbody ID: <u>1500</u> Site #: <u>1</u> Estimated Channel Incision: <u>2.0</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0537366</u> UTM Y: <u>4108646</u> +/- <u>4.5</u> (meters) 11 UTM X: <u>0537652</u> UTM Y: <u>4109751</u> +/- <u>6.9</u> (meters) Average Stream Width: <u>N/A</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Aaron Ball, Drew Dodson</u> | | | | | | | | | | | | | | | | Date: <u>10/11/07</u> Time: <u>13:35</u> Dissolved Oxygen: <u>N/A</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>N/A</u> (°C) | | | | | |
| Transect Cross-Section | | | | | | | | | | | | | | | | | | | | | |
| 01 | | 02 | | 03 | | 04 | | 05 | | 06 | | 07 | | 08 | | 09 | | 10 | | 11 | |
| Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 3 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 4 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 5 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 6 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 7 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 8 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 9 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 |
| N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | |

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Aaron Ball Date: 10/11/07

WBID # 1500
 Site # 2

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

| | | | |
|--|-------------------------|----------------|---|
| Date & Time: | 10/11/07 | 14:40 | Site Location Description (e.g. road crossing): |
| Personnel: | Aaron Ball, Drew Dodson | | Holland Rd. |
| Current Weather Conditions: | clear | Facility Name: | Rocky Ridge Manor |
| Weather conditions for the past 10 days: | 0.74 inches | Permit Number: | MO 0035564 |
| Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/> | | | |

Site Location:

| Location Coordinates (Universal Transverse Mercator Projection, In Meters) | | | | | |
|--|------------------|-------------------|----------------------|--------|--|
| Site 01 | Easting (UTM X): | Northing (UTM Y): | Horizontal Accuracy: | Meters | |
| | 0539668 | 4109540 | | 5.7 | |
| Site 11 | Easting (UTM X): | Northing (UTM Y): | Horizontal Accuracy: | Meters | |
| | 0539870 | 4109633 | | 5.7 | |

Photos:

| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
|-----------|---------------|-----------|---------------|-----------|---------------|
| 76 | Upstream | 77 | Downstream | | |
| | | | | | |
| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
| | | | | | |
| | | | | | |
| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
| | | | | | |

Uses Observed:

| | | | | |
|---------------------------------------|--------------------------------------|---------------------------------------|---|---------------------------------------|
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Skin diving | <input type="checkbox"/> SCUBA diving | <input type="checkbox"/> Tubing | <input type="checkbox"/> Water Skiing |
| <input type="checkbox"/> Wind surfing | <input type="checkbox"/> Kayaking | <input type="checkbox"/> Boating | <input type="checkbox"/> Wading | <input type="checkbox"/> Rafting |
| <input type="checkbox"/> Hunting | <input type="checkbox"/> Trapping | <input type="checkbox"/> Fishing | <input checked="" type="checkbox"/> None of the above | <input type="checkbox"/> Other: |
| Describe: | | | | |

WBID # 1500
 Site # 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

| | | | | |
|--|--------------------------------------|---|--|---|
| <input type="checkbox"/> City/County parks | <input type="checkbox"/> playgrounds | <input type="checkbox"/> MDC conservation lands | <input type="checkbox"/> Urban areas | <input checked="" type="checkbox"/> Rural Residential |
| <input type="checkbox"/> Campgrounds | <input type="checkbox"/> State parks | <input type="checkbox"/> National Forests | <input type="checkbox"/> Nature trails | <input type="checkbox"/> Stairs/walkways |
| <input type="checkbox"/> Boating accesses | <input type="checkbox"/> Fence | <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Steep Slopes | <input type="checkbox"/> Other: |
| Comments: | | | | |

Evidence of Human Use:

| | | | | |
|--|---|--|---|---|
| <input type="checkbox"/> Roads | <input type="checkbox"/> Foot path/prints | <input type="checkbox"/> Dock/platform | <input type="checkbox"/> Camping Sites | <input type="checkbox"/> Rope swings |
| <input type="checkbox"/> RV/ATV Tracks | <input type="checkbox"/> Fire pit/ring | <input type="checkbox"/> NPDES Discharge | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Livestock watering |
| comments/other: none | | | | |

Substrate:

| | | | | | |
|----------|----------|--------|--------|------------|-----------|
| % Cobble | % Gravel | % Sand | % Silt | % Mud/Clay | % Bedrock |
| 50 | 50 | | | | |

Aquatic Vegetation:

| |
|-----|
| N/A |
|-----|

Water Characteristics:

| | | | | | |
|------------------|---------------------------------|---------------------------------|---|--|--|
| Odor: | <input type="checkbox"/> Sewage | <input type="checkbox"/> Musky | <input type="checkbox"/> Chemical | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| Color: | <input type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input checked="" type="checkbox"/> Other: |
| | N/A | | | | |
| Bottom Deposit: | <input type="checkbox"/> Sludge | <input type="checkbox"/> Solids | <input type="checkbox"/> Fine sediments | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| Surface Deposit: | <input type="checkbox"/> Oil | <input type="checkbox"/> Scum | <input type="checkbox"/> Foam | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |

WBID # 1500
Site # 2

Field Data Sheets for Recreational Use Stream Survey:

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

| Channel Feature | Distance from access location (m) | Width (m) | Length (m) | Median Depth (m) | Max Depth (m) |
|-----------------|--------------------------------------|-----------|------------|------------------|---------------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Comments: (Please record any additional comments here.)

none

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: Aaron Ball Date of Survey: 10/18/2007

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

| Waterbody ID: <u>1500</u> Site #: <u>2</u> Estimated Channel Incision: <u>2.0</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0539668</u> UTM Y: <u>4109540</u> +/- <u>5.7</u> (meters) 11 UTM X: <u>0539870</u> UTM Y: <u>4109633</u> +/- <u>5.7</u> (meters) Average Stream Width: <u>N/A</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Aaron Ball, Drew Dodson</u> | | | | | | | | | | | | | | Dissolved Oxygen | | | | | | | |
|--|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|------------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|
| Date: <u>10/11/07</u> Time: <u>14:40</u> Dissolved Oxygen: <u>N/A</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>N/A</u> (°C) | | | | | | | | | | | | | | | | | | | | | |
| Transect Cross-Section | | | | | | | | | | | | | | | | | | | | | |
| 01 | | 02 | | 03 | | 04 | | 05 | | 06 | | 07 | | 08 | | 09 | | 10 | | 11 | |
| Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 3 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 4 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 5 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 6 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 7 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 8 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 9 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 |
| N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | |

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Aaron Ball Date: 10/11/07

WBID # 1500
 Site # 3

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

| | | | |
|--|-------------------------|----------------|---|
| Date & Time: | 10/11/07 | 14:30 | Site Location Description (e.g. road crossing): |
| Personnel: | Aaron Ball, Drew Dodson | | Holland Rd. |
| Current Weather Conditions: | clear | Facility Name: | Rocky Ridge Manor |
| Weather conditions for the past 10 days: | 0.74 inches | Permit Number: | MO 0035564 |
| Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/> | | | |

Site Location:

| Location Coordinates (Universal Transverse Mercator Projection, In Meters) | | | | | |
|--|------------------|-------------------|----------------------|--------|--|
| Site 01 | Easting (UTM X): | Northing (UTM Y): | Horizontal Accuracy: | Meters | |
| | 0541820 | 4112107 | | 4.5 | |
| Site 11 | Easting (UTM X): | Northing (UTM Y): | Horizontal Accuracy: | Meters | |
| | 0541722 | 411926 | | 4.5 | |

Photos:

| | | | | | |
|-----------|---------------|-----------|---------------|-----------|---------------|
| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
| 74 | Upstream | 75 | Downstream | | |
| | | | | | |
| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
| | | | | | |
| | | | | | |
| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
| | | | | | |

Uses Observed:

| | | | | |
|---------------------------------------|--------------------------------------|---------------------------------------|---|---------------------------------------|
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Skin diving | <input type="checkbox"/> SCUBA diving | <input type="checkbox"/> Tubing | <input type="checkbox"/> Water Skiing |
| <input type="checkbox"/> Wind surfing | <input type="checkbox"/> Kayaking | <input type="checkbox"/> Boating | <input type="checkbox"/> Wading | <input type="checkbox"/> Rafting |
| <input type="checkbox"/> Hunting | <input type="checkbox"/> Trapping | <input type="checkbox"/> Fishing | <input checked="" type="checkbox"/> None of the above | <input type="checkbox"/> Other: |
| Describe: | | | | |

WBID # 1500
 Site # 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

| | | | | |
|--|--------------------------------------|---|--|---|
| <input type="checkbox"/> City/County parks | <input type="checkbox"/> playgrounds | <input type="checkbox"/> MDC conservation lands | <input type="checkbox"/> Urban areas | <input checked="" type="checkbox"/> Rural Residential |
| <input type="checkbox"/> Campgrounds | <input type="checkbox"/> State parks | <input type="checkbox"/> National Forests | <input type="checkbox"/> Nature trails | <input type="checkbox"/> Stairs/walkways |
| <input type="checkbox"/> Boating accesses | <input type="checkbox"/> Fence | <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Steep Slopes | <input type="checkbox"/> Other: |
| Comments: | | | | |

Evidence of Human Use:

| | | | | |
|--|---|--|---|---|
| <input type="checkbox"/> Roads | <input type="checkbox"/> Foot path/prints | <input type="checkbox"/> Dock/platform | <input type="checkbox"/> Camping Sites | <input type="checkbox"/> Rope swings |
| <input type="checkbox"/> RV/ATV Tracks | <input type="checkbox"/> Fire pit/ring | <input type="checkbox"/> NPDES Discharge | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Livestock watering |
| comments/other: none | | | | |

Substrate:

| | | | | | |
|----------|----------|--------|--------|------------|-----------|
| % Cobble | % Gravel | % Sand | % Silt | % Mud/Clay | % Bedrock |
| 50 | 50 | | | | |

Aquatic Vegetation:

| |
|-----|
| N/A |
|-----|

Water Characteristics:

| | | | | | |
|------------------|---------------------------------|---------------------------------|---|--|--|
| Odor: | <input type="checkbox"/> Sewage | <input type="checkbox"/> Musky | <input type="checkbox"/> Chemical | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| Color: | <input type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input checked="" type="checkbox"/> Other: |
| N/A | | | | | |
| Bottom Deposit: | <input type="checkbox"/> Sludge | <input type="checkbox"/> Solids | <input type="checkbox"/> Fine sediments | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| Surface Deposit: | <input type="checkbox"/> Oil | <input type="checkbox"/> Scum | <input type="checkbox"/> Foam | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |

WBID # 1500
Site # 3

Field Data Sheets for Recreational Use Stream Survey:

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

| Channel Feature | Distance from access location (m) | Width (m) | Length (m) | Median Depth (m) | Max Depth (m) |
|-----------------|--------------------------------------|-----------|------------|------------------|---------------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Comments: (Please record any additional comments here.)

none

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: Aaron Ball Date of Survey: 10/11/2007

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

| Dissolved Oxygen | | | | | | | | | | | | | | | | | | | | | |
|---|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--|-----------|--------------|-----------|--------------|-----------|
| Waterbody ID: <u>1500</u> Site #: <u>3</u> Estimated Channel Incision: <u>3.0</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0541820</u> UTM Y: <u>4112107</u> +/- <u>4.5</u> (meters) 11 UTM X: <u>0541722</u> UTM Y: <u>411926</u> +/- <u>4.5</u> (meters) Average Stream Width: <u>N/A</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Aaron Ball, Drew Dodson</u> | | | | | | | | | | | | | | | | Date: <u>10/11/07</u> Time: <u>14:30</u> Dissolved Oxygen: <u>N/A</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>N/A</u> (°C) | | | | | |
| Transect Cross-Section | | | | | | | | | | | | | | | | | | | | | |
| 01 | | 02 | | 03 | | 04 | | 05 | | 06 | | 07 | | 08 | | 09 | | 10 | | 11 | |
| Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 3 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 4 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 5 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 6 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 7 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 8 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 9 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 |
| N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | |

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Aaron Ball Date: 10/11/07

WBID # 1500
 Site # 4

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

| | | | |
|--|-------------------------|----------------|---|
| Date & Time: | 10/11/07 | 14:55 | Site Location Description (e.g. road crossing): |
| Personnel: | Aaron Ball, Drew Dodson | | Wolfe Creek Rd |
| Current Weather Conditions: | clear | Facility Name: | Rocky Ridge Manor |
| Weather conditions for the past 10 days: | 0.74 inches | Permit Number: | MO 0035564 |
| Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/> | | | |

Site Location:

| Location Coordinates (Universal Transverse Mercator Projection, In Meters) | | | | | |
|--|------------------|-------------------|----------------------|--------|--|
| Site 01 | Easting (UTM X): | Northing (UTM Y): | Horizontal Accuracy: | Meters | |
| | 0542054 | 4114679 | | 5.7 | |
| Site 11 | Easting (UTM X): | Northing (UTM Y): | Horizontal Accuracy: | Meters | |
| | 0542004 | 4114376 | | 5.7 | |

Photos:

| | | | | | |
|-----------|---------------|-----------|---------------|-----------|---------------|
| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
| 78 | Upstream | 79 | Downstream | | |
| | | | | | |
| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
| | | | | | |
| | | | | | |
| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
| | | | | | |

Uses Observed:

| | | | | |
|---------------------------------------|--------------------------------------|---------------------------------------|---|---------------------------------------|
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Skin diving | <input type="checkbox"/> SCUBA diving | <input type="checkbox"/> Tubing | <input type="checkbox"/> Water Skiing |
| <input type="checkbox"/> Wind surfing | <input type="checkbox"/> Kayaking | <input type="checkbox"/> Boating | <input type="checkbox"/> Wading | <input type="checkbox"/> Rafting |
| <input type="checkbox"/> Hunting | <input type="checkbox"/> Trapping | <input type="checkbox"/> Fishing | <input checked="" type="checkbox"/> None of the above | <input type="checkbox"/> Other: |
| Describe: | | | | |

WBID # 1500
 Site # 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

| | | | | |
|--|--------------------------------------|---|--|---|
| <input type="checkbox"/> City/County parks | <input type="checkbox"/> playgrounds | <input type="checkbox"/> MDC conservation lands | <input type="checkbox"/> Urban areas | <input checked="" type="checkbox"/> Rural Residential |
| <input type="checkbox"/> Campgrounds | <input type="checkbox"/> State parks | <input type="checkbox"/> National Forests | <input type="checkbox"/> Nature trails | <input type="checkbox"/> Stairs/walkways |
| <input type="checkbox"/> Boating accesses | <input type="checkbox"/> Fence | <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Steep Slopes | <input type="checkbox"/> Other: |
| Comments: | | | | |

Evidence of Human Use:

| | | | | |
|---|---|--|---|---|
| <input checked="" type="checkbox"/> Roads | <input type="checkbox"/> Foot path/prints | <input type="checkbox"/> Dock/platform | <input type="checkbox"/> Camping Sites | <input type="checkbox"/> Rope swings |
| <input type="checkbox"/> RV/ATV Tracks | <input type="checkbox"/> Fire pit/ring | <input type="checkbox"/> NPDES Discharge | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Livestock watering |
| comments/other: | | | | |

Substrate:

| | | | | | |
|----------|----------|--------|--------|------------|-----------|
| % Cobble | % Gravel | % Sand | % Silt | % Mud/Clay | % Bedrock |
| 50 | 50 | | | | |

Aquatic Vegetation:

| |
|-----|
| N/A |
|-----|

Water Characteristics:

| | | | | | |
|------------------|---------------------------------|---------------------------------|---|--|--|
| Odor: | <input type="checkbox"/> Sewage | <input type="checkbox"/> Musky | <input type="checkbox"/> Chemical | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| Color: | <input type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input checked="" type="checkbox"/> Other: |
| N/A | | | | | |
| Bottom Deposit: | <input type="checkbox"/> Sludge | <input type="checkbox"/> Solids | <input type="checkbox"/> Fine sediments | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| Surface Deposit: | <input type="checkbox"/> Oil | <input type="checkbox"/> Scum | <input type="checkbox"/> Foam | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |

WBID # 1500
Site # 4

Field Data Sheets for Recreational Use Stream Survey:

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

| Channel Feature | Distance from access location (m) | Width (m) | Length (m) | Median Depth (m) | Max Depth (m) |
|-----------------|--------------------------------------|-----------|------------|------------------|---------------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Comments: (Please record any additional comments here.)

none

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: Aaron Ball Date of Survey: 10/11/2007

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

| Waterbody ID: <u>1500</u> Site #: <u>4</u> Estimated Channel Incision: <u>4.0</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0542054</u> UTM Y: <u>4114679</u> +/- <u>5.7</u> (meters) 11 UTM X: <u>0542004</u> UTM Y: <u>4114376</u> +/- <u>5.7</u> (meters) Average Stream Width: <u>N/A</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Aaron Ball, Drew Dodson</u> | | | | | | | | | | | | | | | | Dissolved Oxygen | | | | | |
|--|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|------------------|-----------|--------------|-----------|--------------|-----------|
| Date: <u>10/11/07</u> Time: <u>14:55</u> Dissolved Oxygen: <u>N/A</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>N/A</u> (°C) | | | | | | | | | | | | | | | | | | | | | |
| Transect Cross-Section | | | | | | | | | | | | | | | | | | | | | |
| 01 | | 02 | | 03 | | 04 | | 05 | | 06 | | 07 | | 08 | | 09 | | 10 | | 11 | |
| Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 2 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 3 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 4 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 5 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 6 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 7 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 8 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| 9 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 | N/A | 0.00 |
| N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | | N/A | |

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Aaron Ball Date: 10/11/07

WBID # 1500
 Site # 5

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

| | | | |
|--|-------------------------|----------------|---|
| Date & Time: | 10/11/07 | 15:43 | Site Location Description (e.g. road crossing): |
| Personnel: | Aaron Ball, Drew Dodson | | feeder creek along Wolfe Creek Rd. |
| Current Weather Conditions: | clear | Facility Name: | Rocky Ridge Manor |
| Weather conditions for the past 10 days: | 0.74 inches | Permit Number: | MO 0035564 |
| Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/> | | | |

Site Location:

| Location Coordinates (Universal Transverse Mercator Projection, In Meters) | | | | | |
|--|------------------|-------------------|----------------------|--------|--|
| Site 01 | Easting (UTM X): | Northing (UTM Y): | Horizontal Accuracy: | Meters | |
| | 0542547 | 4115761 | | 9.0 | |
| Site 11 | Easting (UTM X): | Northing (UTM Y): | Horizontal Accuracy: | Meters | |
| | 0542328 | 4115983 | | 9.0 | |

Photos:

| | | | | | |
|-----------|---------------|------------|---------------|------------|---------------|
| Photo ID# | Photo Purpose | Photo ID#: | Photo Purpose | Photo ID#: | Photo Purpose |
| 80 | Upstream | 81 | Downstream | | |
| | | | | | |
| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
| | | | | | |
| | | | | | |
| Photo ID# | Photo Purpose | Photo ID# | Photo Purpose | Photo ID# | Photo Purpose |
| | | | | | |

Uses Observed:

| | | | | |
|---------------------------------------|--------------------------------------|---------------------------------------|---|---------------------------------------|
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Skin diving | <input type="checkbox"/> SCUBA diving | <input type="checkbox"/> Tubing | <input type="checkbox"/> Water Skiing |
| <input type="checkbox"/> Wind surfing | <input type="checkbox"/> Kayaking | <input type="checkbox"/> Boating | <input type="checkbox"/> Wading | <input type="checkbox"/> Rafting |
| <input type="checkbox"/> Hunting | <input type="checkbox"/> Trapping | <input type="checkbox"/> Fishing | <input checked="" type="checkbox"/> None of the above | <input type="checkbox"/> Other: |
| Describe: | | | | |

WBID # 1500
 Site # 5

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

| | | | | |
|--|--------------------------------------|---|--|--|
| <input type="checkbox"/> City/County parks | <input type="checkbox"/> playgrounds | <input type="checkbox"/> MDC conservation lands | <input type="checkbox"/> Urban areas | <input type="checkbox"/> Rural Residential |
| <input type="checkbox"/> Campgrounds | <input type="checkbox"/> State parks | <input type="checkbox"/> National Forests | <input type="checkbox"/> Nature trails | <input type="checkbox"/> Stairs/walkways |
| <input type="checkbox"/> Boating accesses | <input type="checkbox"/> Fence | <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Steep Slopes | <input type="checkbox"/> Other: |
| Comments: none | | | | |

Evidence of Human Use:

| | | | | |
|--|---|--|---|---|
| <input type="checkbox"/> Roads | <input type="checkbox"/> Foot path/prints | <input type="checkbox"/> Dock/platform | <input type="checkbox"/> Camping Sites | <input type="checkbox"/> Rope swings |
| <input type="checkbox"/> RV/ATV Tracks | <input type="checkbox"/> Fire pit/ring | <input type="checkbox"/> NPDES Discharge | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Livestock watering |
| comments/other: none | | | | |

Substrate:

| | | | | | |
|----------|----------|--------|--------|------------|-----------|
| % Cobble | % Gravel | % Sand | % Silt | % Mud/Clay | % Bedrock |
| 40 | 50 | | | | 10 |

Aquatic Vegetation:

| |
|--|
| 5% floating aquatic vegetation. 10% vegetation (rooted) in shallow areas |
|--|

Water Characteristics:

| | | | | | |
|------------------|---|---------------------------------|---|--|---------------------------------|
| Odor: | <input type="checkbox"/> Sewage | <input type="checkbox"/> Musky | <input type="checkbox"/> Chemical | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| Color: | <input checked="" type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input type="checkbox"/> Other: |
| Bottom Deposit: | <input type="checkbox"/> Sludge | <input type="checkbox"/> Solids | <input type="checkbox"/> Fine sediments | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| Surface Deposit: | <input checked="" type="checkbox"/> Oil | <input type="checkbox"/> Scum | <input type="checkbox"/> Foam | <input type="checkbox"/> None | <input type="checkbox"/> Other: |

WBID # 1500
Site # 5

Field Data Sheets for Recreational Use Stream Survey:

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

| Channel Feature | Distance from access location (m) | Width (m) | Length (m) | Median Depth (m) | Max Depth (m) |
|-----------------|--------------------------------------|-----------|------------|------------------|---------------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Comments: (Please record any additional comments here.)

none

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: Aaron Ball Date of Survey: 10/11/2007

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

| | |
|--|--|
| Waterbody ID: <u>1500</u> Site #: <u>5</u> Estimated Channel Incision: <u>2.0</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0542547</u> UTM Y: <u>4115761</u> +/- <u>9</u> (meters) 11 UTM X: <u>0542328</u> UTM Y: <u>4115983</u> +/- <u>9</u> (meters) Average Stream Width: <u>3</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Aaron Ball, Drew Dodson</u> | Dissolved Oxygen Date: <u>10/11/07</u> Time: <u>13:45</u> Dissolved Oxygen: <u>5.5</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>18.8</u> (°C) |
|--|--|

Transect Cross-Section

| Station | 01 | | 02 | | 03 | | 04 | | 05 | | 06 | | 07 | | 08 | | 09 | | 10 | | 11 | |
|--------------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|
| | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) |
| Left Bank | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0.2 | 0.05 | 0.7 | 0.15 | 0.6 | 0.15 | | 0.00 | 0.4 | 0.05 | 0.7 | 0.15 | | 0.00 | 0.6 | 0.10 | 0.5 | 0.05 | 0.4 | 0.10 | 0.8 | 0.20 |
| 2 | 0.4 | 0.10 | 1.4 | 0.20 | 1.2 | 0.20 | | 0.00 | 0.8 | 0.10 | 1.4 | 0.20 | | 0.00 | 1.2 | 0.20 | 1.0 | 0.00 | 0.8 | 0.30 | 1.6 | 0.30 |
| 3 | 0.6 | 0.15 | 2.1 | 0.25 | 1.8 | 0.25 | | 0.00 | 1.2 | 0.15 | 2.1 | 0.30 | | 0.00 | 1.8 | 0.15 | 1.5 | 0.05 | 1.2 | 0.40 | 2.4 | 0.45 |
| 4 | 0.8 | 0.15 | 2.8 | 0.20 | 2.4 | 0.40 | | 0.00 | 1.6 | 0.20 | 2.8 | 0.40 | | 0.00 | 2.4 | 0.10 | 2.0 | 0.00 | 1.6 | 0.30 | 3.2 | 0.40 |
| 5 | 1.0 | 0.10 | 3.5 | 0.20 | 3.0 | 0.50 | | 0.00 | 2.0 | 0.20 | 3.5 | 0.50 | | 0.00 | 3.0 | 0.20 | 2.5 | 0.05 | 2.0 | 0.40 | 4.0 | 0.45 |
| 6 | 1.2 | 0.10 | 4.2 | 0.25 | 3.6 | 0.45 | | 0.00 | 2.4 | 0.25 | 4.2 | 0.50 | | 0.00 | 3.6 | 0.30 | 3.0 | 0.10 | 2.4 | 0.40 | 4.8 | 0.40 |
| 7 | 1.4 | 0.10 | 4.9 | 0.30 | 4.2 | 0.30 | | 0.00 | 2.8 | 0.25 | 4.9 | 0.60 | | 0.00 | 4.2 | 0.35 | 3.5 | 0.05 | 2.8 | 0.40 | 5.6 | 0.50 |
| 8 | 1.6 | 0.10 | 5.6 | 0.30 | 4.8 | 0.10 | | 0.00 | 3.2 | 0.20 | 5.6 | 0.60 | | 0.00 | 4.8 | 0.30 | 4.0 | 0.10 | 3.2 | 0.30 | 6.4 | 0.45 |
| 9 | 1.8 | 0.05 | 6.3 | 0.25 | 5.4 | 0.10 | | 0.00 | 3.6 | 0.10 | 6.3 | 0.40 | | 0.00 | 5.4 | 0.20 | 4.5 | 0.05 | 3.6 | 0.15 | 7.2 | 0.30 |
| Right Bank | 2.0 | 0.00 | 7.0 | 0.00 | 6.0 | 0.00 | N/A | 0.00 | 4.0 | 0.00 | 7.0 | 0.00 | N/A | 0.00 | 6.0 | 0.00 | 5.0 | 0.00 | 4.0 | 0.00 | 8.0 | 0.00 |
| Feature Type | pool | | pool | | pool | | N/A | | pool | | pool | | N/A | | pool | | riffle | | pool | | pool | |

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

0.60 MAXIMUM

0.15 MEDIAN

Signed: Aaron Ball, Drew Dodson Date: 10/11/07

WBID# 1500



Site# 1 Photo ID# 72, Upstream



Site# 1 Photo ID# 73, Downstream



Site# 2 Photo ID# 76, Upstream



Site# 2 Photo ID# 77, Downstream

WBID# 1500



Site# 3 Photo ID# 74, Upstream



Site# 3 Photo ID# 75, Downstream



Site# 4 Photo ID# 78, Upstream



Site# 4 Photo ID# 79, Downstream

WBID# 1500



Site# 5 Photo ID# 80, Upstream



Site# 5 Photo ID# 81, Downstream